1. Introduction:

This procedure is designed for a Vapor Recovery Balance System. The procedure sets forth testing requirements and identifies the responsibilities and authorities for the Registered Service Representative (RSR), and the State inspector. Within each section of the SOP there are three subsections. The first subsection spells out the responsibility and authorities for the RSR while the second subsection spells out the responsibility and authorities for the State inspector. The third subsection is to be used by the State inspector for documenting the results of test.

2. Purpose:

The purpose of this SOP is to set forth the responsibilities and authorities for both the vapor recovery RSR and the State inspector with respect to the initial or annual vapor recovery test. It is also the purpose of this procedure to create consistency between State inspectors, RSRs, and from test to test.

3. Responsibility and Authority:

RSR is responsible for conducting the annual test using the methods required under state statute and regulations. And at the same time conduct those tests in a manor set forth in the regulations for an RSR.

State Inspector will conduct his or her inspection as required under this SOP and represent the Department at a witnessed initial or annual test.

PROCEDURE

4. PRE-INSPECTION:

4.1. Registered Service Representative (RSR), Responsibilities and Authorities:

If a pre test is conducted by an RSR prior to the witnessed annual test, the RSR must have completed that test successfully.

4.1.1. RSR will be able to repair/replace the P/V caps, dry breaks and conduct A/L tests up to one (1) hour prior to scheduled start time. (NOTE: There is a prohibition of the addition of any fuel into the storage tanks – TO INCLUDE RETURN OF FUEL FROM THE A/L PRE TEST CHECKS -based upon the type of test (8 hours for the short test and 3 hours for the long test procedures.)

4.1.2. If a pre-test is conducted the RSR will have completed the Pre-test Checklist. If a pre-test is not performed the RSR will indicate that no pre-test was conducted on the Pre-Test Checklist. The RSR will present both the Pre-Test Checklist and the Test Method Selection sheet signed by the RSR and Site owner/operator to the State inspector prior to conducting the annual test.

4.1.3. The RSR at the scheduled time of the witnessed annual test will present the following documents to the State inspector: 1.Current tank Inventory 2. Last fuel delivery (per Veeder Root or Encompass systems) 3. BMF No., for the station being tested, 4. Daily inspection logs and maintenance logs,

Note: If the required documentation is not presented before the time of the test, the owner operator or RSR shall be subject to civil penalty under A.A.C. R20-2 905.

4.1.4. The RSR or Site owner/operator must remove dispenser panels from both sides.
4.1.5. For vaulted systems the RSR will have the vaults open for the State inspector to visually inspect interior.
4.1.6. The RSR will ensure that all hoses, nozzles, and spill buckets will be drained prior to testing as required.

4.2. State Inspector Responsibilities and Authorities:

4.2.1. The State Inspector will identify him or her self and present their Department photo identification, and state the purpose of your visit as required under Department policies and Procedures No. 100.
4.2.2. The State Inspector will review with the manager or responsible party, the regulatory bill of rights and have them sign, acknowledging receipt on form (DWM 149), the State inspector will also review the site License and record the BMF No.
4.2.3. The State Inspector will examine the tanks for fuel levels and water content and check drop tube length. Physically "stick" the tanks to obtain volume levels, Record liquid volume amount using stick reading and appropriate tank chart, record on WM Pressure Decay form, do this with no pressure on the tanks. This shall be done using water finding paste. If there is alcohol in the gas per the PTD they are not allowed to have any water, if there is water in the tank issue a stop sale/stop use order (DWM 53). If there is no alcohol in the gas they are allowed to have up to 1" of water in the tank.
4.2.4. Check the drop tube length. There is no minimum height, but the maximum is 6" from the bottom of the tank at its highest point. If the highest point is more than 6" from the bottom of the tank a stop sale/stop use order (DWM 53) must be issued.
4.2.5. The State Inspector will conduct calculations and verify for appropriate test method. Subtract liquid volume from actual tank capacity this gives you amount of ullage in the tank(s) (A - C = ullage). For TP 91-1 Pressure Decay / Leak Test: To determine length of test you take total ullage divided by 1000 and multiply by 5 this gives you length of test time in minutes. Always round the amount of ullage to the next 1000 (i.e. 8,145 rounds up to 9,000). For TP 96-1 consult chart in test procedure.
4.2.6. The State Inspector will conduct a visual inspection of the site, (Use Fueling Device Form DWM 40):
    4.2.6.1. Inspect hanging hardware for visible damage, leaks, tears wrong type equipment installed etc. (See AAC R20-2-907 (D))
    4.2.6.2. Ensure that equipment and configuration is CARB approved.
    4.2.6.3. Check for placement and readability of decals. Decals required:
    4.2.6.4. Dispenser number for documentation purposes
    4.2.6.5. Display labeling
    4.2.6.6. Octane labels
    4.2.6.7. Fueling Instructions/Department phone number (602-255-5211)
    4.2.6.8. Oxygenate labeling
    4.2.6.9. Product grade label

4.2.6.10. All computer displays must be legible

4.2.7. Visually inspect the inside of all dispensers for:

4.2.7.1. Ensure ball vales inside of the dispensers are in the “open” position

4.2.7.2. Wire seals on meters are affixed as required by NIST Handbook 44 G-UR.4.5.

4.2.7.3. There are no liquid leaks

4.2.7.4. Slope of vapor recovery piping must slope down towards riser.

4.2.7.5. Equipment that shows signs of tampering.

Note: If there are deficiencies during visual inspection list them on the Fueling Device/Vapor Compliance Inspection Form (DWM 40). Include the amount of time given to correct.

4.3. State Inspector Documentation of Results:

All information will be entered onto Department form DWM 149 or DWM 40.

4.3.1. Enter the product ID and the stick readings into the inspection form

4.3.2. Measure and record drop tube length on the inspection form

4.3.3. Use only for manifolded systems.

4.3.4. Yes or No. Is the point of the drop tube more than 6 inches from the tank bottom. If “yes” then issue a Stop Sale/Stop Use Order (DWM 53).

4.3.5. Yes or No. If box 16 minus box 17 is greater than 1 wci answer “yes” and the test fails issue a top Sale/Stop Use Order (DWM53).

4.3.6. Yes or No. Determine this while system is being put under pressure also after pressure decay test is concluded.

4.3.7. Depress each dry break for approximately 2-3 seconds. If it is a manifolded system there should be pressure at all gasoline dry breaks, not at the diesel dry break. If it is a non-manifolded system determine if there is pressure at the dry break after the pressure decay test is concluded on each individual tank. If there is no pressure at the dry break on gasoline tanks or there is pressure at the diesel dry break the system fails, there is a problem with the piping issue a Stop Sale/ Stop Use Order (DWM 53).

4.3.8. Yes or No. Determine using the appropriate method. If “yes” then the site fails, diesel tanks must be isolated from vapor recovery system issue a Stop Sale/Stop Use Order (DWM 53).

4.3.9. Have owner/operator sign.

4.3.10. Print your name and inspector number.

4.3.11. Write “pass” or “fail,” list deficiencies, re-test fee if needed and timeframe to correct deficiencies.

5. PRESSURE DECAY:

Test MUST begin within thirty minutes (30) of scheduled test time, with consideration by the State inspector for larger Ullage amounts, and NO REPAIRS can be made once testing has begun. All gasoline sales will be suspended until all testing is completed.

5.1. Registered Service Representative (RSR), Responsibilities and Authorities:

5.1.1. The RSR may now start introduction of nitrogen into the system for the test. Introduce nitrogen into system– (NOT to exceed 5 cubic feet per minute (cfm) or 1 pressure per square inch (Psi).
5.1.2. The RSR will test the vent caps to ensure they meet the requirements for +/-3 water column inch (wci) on pressure side and +/–8 wci for the vacuum side, test criteria includes ability to hold for both pressure and vacuum at the specified rate. If the vent cap is defective the test will proceed and the cap will be replaced, and replacement part tested. A civil penalty will be issued.
5.1.3. When the system is pressured to between 8 and 10 wci, check the dry breaks. The RSR will test each dry break to ensure they all seal correctly, by quickly depressing and releasing the plunger and testing the seal with soapy water. If it. fails to hold, it shall be tested to a max of 3x, before it is considered defective and while testing will be continued , it must be repaired/replaced and retested by the RSR after completion of state testing, within 24 hours and documented on the Maintenance log. A civil penalty may be issued because the equipment is not operating as designed. The results shall be faxed to the Department upon completion of repairs and retests.
5.1.4. The RSR will check the zero shift on the monometer prior to pressurizing to 11 wci.
5.1.5. The RSR will then pressurize the tanks to 11 wci, with 15 minutes stabilization time per TP 91-1, and 10 min stabilization time on TP 96-1. At the end of the stabilization time the tank pressure shall be either dropped to 10wci OR raised to 10 wci, as appropriate.
5.1.6. The RSR will check for zero shift of the manometer and the test shall begin.
5.1.7. The RSR upon completion of pressure decay test will recheck the manometer for zero shift (Note if there is a shift in zero the Inspector will use the difference to determine pass or fail).
5.1.8. The RSR upon completion of the pressure decay test and prior to continuing the rest of the annual test shall replace the vent caps.

5.2. State Inspector Responsibilities and Authorities:

5.2.1. Ensure ZERO tank pressure.
5.2.2. Ensure ZERO on the manometer prior to the start of pressurization, after it has stabilized, and at the end of the test. (Digital Manometer IS required.)
5.2.3. Observe introduction of nitrogen into system– (NOT to exceed 5 cfm or 1 Psi) Pressure decay test will be conducted with, caps off of vapor and liquid fills.
5.2.4. Visually inspect inside the dispensers to ensure Ball valves inside of dispensers in the "open" position, and there are no liquid leaks, lead wire security seals are affixed and check dispensers for correct and current labeling. Visually inspect the vault e-vents (via mirror etc). Note do not enter a confined space.
5.2.5. Ensure at least one (1) vent pipe has an eighth inch (1/8”) threaded plug, installed between six (6) and eight (8) feet above grade.
5.2.6. Verify all equipment installed meets the CARB requirements for the approved vapor recovery system. Note any modifications on the WM assignment sheet.
5.2.7. Check the Veeder Root / alarm system for alarm state.

5.3. State Inspector Documentation of Results:

All information will be entered onto Department form DWM 77A.

5.3.1. (Note Need to use the inspection form and re number the items)
5.3.2. Box number on form DWM 77A:
5.3.3. BMF No. - can be found on the license or assignment sheet.
5.3.4. Inspection No. - found on assignment sheet.
5.3.5. ATC No. - found on assignment sheet.
5.3.6. Date - date on which you are inspecting
5.3.7. Test contractor - company and individuals name.
5.3.8. List actual grades (i.e. 87, 89, 91).
5.3.9. Correct Actual capacity listing on assignment sheet (in gallons) if necessary.
5.3.10. Value of D/A x 100 = percent of ullage in tank(s).
5.3.11. Actual time pressure decay test begins.
5.3.12. Actual time pressure decay test ends.
5.3.13. Total amount of time test ran (end time - start time = total elapsed time).
5.3.14. Record actual test gauge value at start of test.
5.3.15. Record actual test gauge value at end of test. If box 16 minus box 17 is greater than 1 wci the site fails, issue stop sale/stop use order (DWM 53).
5.3.16. 18 – 26 Use only for manifolded systems.
5.3.17. Yes or No. Is the point of the drop tube more than 6 inches from the tank bottom. If “yes” then issue stop sale/stop use order (DWM 53).
5.3.18. Yes or No. If box 16 minus box 17 is greater than 1 wci answer “yes” and the test fails issue stop sale/stop use order (DWM53).
5.3.19. Yes or No. Determine this while system is under pressure and pressure decay test is concluded.
5.3.20. Depress each dry break for approximately 2-3 seconds. If it is a manifolded system there should be pressure at all gasoline dry breaks, not at the diesel dry break. If it is a non-manifolded system.
5.3.21. Determine if there is pressure at the dry break after the pressure decay test is concluded on each individual tank. If there is no pressure at the dry break on gasoline tanks or there is pressure at the diesel dry break the system fails, there is a problem with the piping issue stop sale/stop use order (DWM 53).
5.3.22. Yes or No. Determine using method in 29. If “yes” then the site fails, diesel tanks must be isolated from vapor recovery system issue stop sale/stop use order (DWM 53).
5.3.23. Have tester sign.
5.3.24. Print your name and Inspector No.
5.3.25. Write “pass” or “fail,” list deficiencies, re-test fee if needed and timeframe to correct deficiencies.

6. LIQUID BLOCKAGE:

6.1. Registered Service Representative (RSR), Responsibilities and Authorities:

6.1.1. RSR checks to ensure all dispensers have 1 inch tee port on vapor recovery riser, with easy access. If not WM issues stop sale/stop use order (DWM 53) for the dispenser(s) with access problem. (Note: flexible piping i.e. Rubber piping is not allowed.)

6.1.2. Pump 5 gallons down each vapor recovery tee port on initial test and re-cap each port. On annual tests, unless there is indication of construction or modification of the VR system use 5 gals down the furthest points on each branch/island. On systems with vapor pots, use 1 gal per branch/island, allowing 30 minutes with the appropriate turbine engaged to clear the vapor pot. Failure to pass this portion of the test is considered to be a site failure and DWM 53 is to be issued per 41-2132D or R20-2-905c code 714) or 910d any portion of the tests

6.1.3. If there is liquid in the VR side of the dispensing hoses, this will be considered a failure for the entire system, due to inability to determine if the effected equipment would have passed / failed pressure decay testing and site/equipment will be tagged out of service and retesting will be mandated.

6.2. State Inspector Responsibilities and Authorities:

6.2.1. On the initial test all the dispensers will be tested and on the witnessed annual test you must check the furthest dispenser on each island.

6.2.2. Have tester introduce nitrogen into the system to 20 cubic feet per hour (cfh). Record value off gauge (maximum allowable @ 20 cfh is .15 on 1 wci gauge).

6.2.3. Have tester introduce nitrogen into the system to 60 cfh. Record value off gauge (maximum allowable @ 60 cfh is .45 on 1 wci gauge).

6.2.4. Have tester introduce nitrogen into the system to 100 cfh. Record value off gauge (maximum allowable @ 100 cfh is .95 on 1 wci gauge.

6.2.5. If the introduction of nitrogen goes more than double the first value (of 20cfm), the test will be restarted and fuel reintroduced (except for systems with vapor pot)

6.2.6. Repeat 6 – 10 until all nozzles and grades are tested and recorded.

6.3. State Inspector Documentation of Results:

All information will be entered onto Department form DWM 77.

6.3.1. BMF No. - can be found on license or assignment sheet.

6.3.2. Inspection No. - found on sheet.

6.3.3. ATC No. - found on sheet.

6.3.4. Date – date you are inspecting.

6.3.5. Circle appropriate system type.

6.3.6. Dispenser No. - found on dispenser.

6.3.7. Product – use octane rating

Note: Any value above the maximum in boxes 8 – 10 constitutes a failure for that grade on that dispenser. Blue tag that nozzle and issue stop sale/stop use order (DWM 53).

7. COMMUNICATION TEST:

7.1. Registered Service Representative (RSR), Responsibilities and Authorities:

7.1.1. Close all dry breaks.
7.1.2. Introduce nitrogen @ 100 scfh. Observe gauge, once gauge reaches a value more than 20 points higher than the highest reading on blockage, on 1 wci gauge, release the pressure at the dry break. Identify dispenser that you are at and record values, with dry break closed and open Repeat for each tank from each island, and record values.
7.1.3. All communication tests will be performed from the furthest dispenser on each island from the tank pad.
7.1.4. Note: once you release pressure at the dry break there should be an immediate and significant drop, at least .1 on a 1 wci gauge. If there is a blockage, that particular island needs to be blue tagged and a stop sale/stop use order issued (DWM 53).
7.1.5. The communication test will be conducted from the same dispenser as the blockage test. For an initial test the communications test will be conducted from the furthest point on each branch.

7.2. State Inspector Responsibilities and Authorities:

7.2.1. State Inspector will observe the test.

7.3. State Inspector Documentation of Results:

All information will be entered onto Department form DWM.

7.3.1. List testing company and tester.
7.3.2. Print your name and Inspector No.
7.3.3. Have owner/operator AND RSR sign form or indicate that they “Refused to sign”.

8. FLOW Rate Test

8.1. Registered Service Representative (RSR), Responsibilities and Authorities:

8.1.1. RSR shall insure that the flow rate has been checked prior to the inspector’s test.
8.1.2. RSR on a balance system the RSR shall check the display on both sides of the dispenser to ensure that the value displays on the dispenser are identical.

8.2. State Inspector Responsibilities and Authorities:

8.2.1. State Inspector on a balance system the flow rate shall be conducted by the state inspector using a stopwatch. The test shall be conducted on each grade of fuel on a different dispenser. On a single hose dispenser you only test one grade and record on the report that this is for all grades. If the rate is determined to be grater than 10 gallons per minute that grade shall be blue tagged out of service. (Check this)

8.2.2. State Inspector criteria for passing the flow test is a maximum of 10.0 and the minimum there is none. The rest are set forth in the executive order.

8.3. State Inspector Documentation of Results:

All information will be entered onto Department form DWM.

8.3.1. The results shall be recorded on the Liquid Blockage result sheet corresponding to the grade of fuel being tested in gallons per minute.

This Procedure supercedes all other editions.

Technical Review	Approved for Technical Content Yes [X] No [ ]	Approved for Use Yes [X] No [ ]	
		Date: 3/29/05	Initials: DE Assistant Director
Quality Review	Approved for Quality Content Yes [X] No [ ]	Approved for Use Yes [X] No [ ]	
		Date: 3/29/05	Initials: DMY Air & Fuel Quality Program Manager